



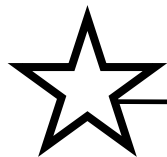
Massey University
COLLEGE OF CREATIVE ARTS



Billy Colisimo



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3D Design Workshop Safety Manual 2012

Institute of Design for Industry and Environment



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Welcome

Welcome to the Institute of Design for Industry and Environment at Massey University Wellington. In this workshop you will be introduced to a range of processes, model crafting skills and material manipulation techniques.

The Design Workshop supports this by instructing you as individuals and as groups/classes on safe working practices that will enable you to communicate your designs three dimensionally.

A workshop environment contains hazards – some obvious, some not so obvious - and it is important that everyone understands the safety issues. This document outlines the health and safety issues in the Design Workshop, the rules (things that are compulsory) and guidelines about how you can operate safely within this facility.

The interpretation and enforcement of these rules and guidelines will be at the discretion of the Design Workshop Manager and staff.

Please become proactive towards keeping this exceptional facility a safe and enjoyable place for everyone.

Before using this Design Workshop or undergoing any machine and power tool training, you must complete three things:

- Sit and pass a written Safety Test, (requires a minimum of 24 out of 25 correct answers)
- Sign the Design Workshop Safety Contract
- Correctly wear the required safety equipment



The Design Workshop Team

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Section One - Introduction

The Design Workshop at Massey University Wellington caters for over 200 Industrial and Spatial Design Students plus academic staff. To maintain a safe, enjoyable working environment, all users must follow these rules.

For your security, the general space is monitored with surveillance cameras and all activities are recorded for reviewing purposes.

The Workshop aims to incorporate best practice methods. This results in a dynamic environment that needs to be reflected in this manual. Your suggestions for the improvement of this document are welcome.

Your introduction to the Design Workshop involves an orientation tour after which you have three obligations to fulfill:

- 1) Have your Workshop photo ID taken holding a white board with your preferred name clearly readable. (A member of staff will photograph you in the Workshop).
- 2) Remove the Design Workshop Plan from the back of this document and complete all the listed requirements. (Remember to print your name and tick-off your design course).
- 3) Hand this sheet over to the staff member taking your photograph.

Your completed map sheet acknowledges the acceptance of specific safety systems and procedures placed within this Workshop. These emergency items include exit doors, telephone, fire alarm switches, fire blankets, panic switches for total machine stoppage, first aid supplies, air extraction switches, fire hose reels, fire extinguishers and surveillance cameras.

Student Access & Machine Qualification

✱ To become qualified to use the Design Workshop you must:

- 1) Read and understand this Safety Manual.
- 2) Pass a written test on this Safety Manual.

✱ To become qualified to operate a specific machine from this Workshop, you must:

- 1) First become a qualified Workshop user (as above).
- 2) Attend a technical demonstration on the safe operation of that specific machine or power tool.
- 3) Demonstrate the safe operation of that machine to Workshop staff member.

Note: You need repeat demonstrations on some machines *i.e. the bench saw*.

✱ To become qualified to operate a machine from this Workshop without staff supervision, you must:

- 1) Satisfy the supervising Workshop staff member you can safely operate this machine on your own.
- 2) Sign the relevant Machine Use Certification chart, and have your signature countersigned by the Design Workshop staff member.

✱ If you wish to use a machine outside the scope of your training or about which you have forgotten relevant information, check with Workshop staff.

✱ Having gained approval to use a machine, you may operate that machine without supervision provided you do so within the scope of the instruction.

Responsibilities

Safety in the Design Workshop depends on the full cooperation and care of all Workshop users. It is everyone's responsibility to work safely and abide by this manual.

If you have a medical condition that could place yourself or others at risk, notify the Workshop staff. This information will be treated in strictest confidence.

If you are unfamiliar with any machine or process, do not proceed without seeking advice from Workshop Staff.

Be alert and careful when moving around the Workshop, especially near operating machinery.

If you recognise a potential or existing safety hazard or unsafe action by other workshop user(s), immediately inform those at risk. Report this to a staff member as soon as possible.

Report any of the issues below to Workshop staff:

- 1) Tool breakages
- 2) Suspected faults
- 3) Erratic performance of machines
- 4) Failure of overhead lighting

Become familiar with:

- 1) The location of emergency stop buttons (kill switches) in the Workshop
- 2) Appropriate responses to fire
- 3) Fire evacuation procedures
- 4) Specific safety signage

Keep doors closed when not using them.

Always maintain the areas with yellow crosshatched lines clear for emergency access and safe movement.

Don't run or ride on any wheeled devices in the Workshop.

Be considerate and maintain a safe and tidy work area at all times. Don't clutter the Workshop. (Refer: Storage Policy)

Students must be alert when in the Workshop, and must not be affected by such things as alcohol, drugs, medication or lack of sleep.

Design Workshop Housekeeping

A clean and tidy Design Workshop is the responsibility of all Workshop Users. There will be 15 minute clean-ups at 11:45 on Mondays and Thursdays or whenever required to keep the Workshop environment safe. Commercial cleaners vacuum the floors during the evenings, from Monday to Friday.

- ✱ Place any tools and equipment you're using safely within your work area. Return tools to where they belong when you have finished using them.
- ✱ Put rubbish in the rubbish bins as soon as possible.
- ✱ Cooperate with the cleaners, and remove your objects off the floor.
- ✱ You must stop your work and contribute to clean-ups during normal operating hours. There are trolleys with bins for the temporary storage of your work during clean-ups.

First Aid & Emergency Procedures

In an emergency, dial 1 for the outside line, then 111 on the phone provided for this purpose in the general space (11A02), then provide First Aid if you are qualified.

First Aid treatment is available from Workshop Staff during their working hours. First Aid supplies are kept in the Specialty Tools & Materials Kiosk (11A07) and in a wall-mounted dispenser opposite the door of the emergency decontamination shower (near Kiosk).

All students are encouraged to attain a First Aid Certificate.

An eyewash fountain is located at the sink of the Design Room, near the Kiosk.

An emergency decontamination shower is in the toilet cubicle within the Design Room. You must not use the toilet in here, as this shower must be accessible at all times.

There are two wall mounted emergency fire blankets. One is situated inside the Welding Bay (11A10) beside the entry sliding door and the other blanket is on the Design Space wall, at the entrance to the Metal Shop (11A05). If clothing catches fire, wrap the victim in the blanket and roll them on the floor. Where practical, immerse or pour plenty of cold tap water to any burns for 15 minutes.

Report all injuries, no matter how trivial, to a staff member as soon as possible. All injuries must be logged, most require a form to be completed so appropriate action may be taken to maintain a high safety standard.

Emergency exits, fire extinguishers, alarm switches, blankets & hoses, emergency kill switches to all electrical machinery, first aid locations and telephone must be identified and marked (refer to map).

In the event of a fire that is easily containable such as a fire in a rubbish bin or a motor on a drill press, students should use a **carbon dioxide extinguisher** in preference to a fire hose. Please familiarize yourself with these devices. Any fires greater than this require you to use the closest exit located away from the fire, and move to the west end of the building.

Section Two – Personal Protection

It is unhygienic to share protective equipment.

- ✱ The Design Workshop Staff must approve all protective equipment.
- ✱ Protective equipment is expensive; please clearly name all your gear and store carefully.
- ✱ Fit correct protective equipment **before** entering an existing hazard area; do not remove your safety equipment until exiting from that hazard.
- ✱ Both those creating a safety hazard and all persons within the area subjected to this hazard, must wear protective safety equipment.
- ✱ Before starting a hazardous task, tell everyone in that area to adopt approved safety measures.

Eye Protection

- ✱ Always wear safety glasses or goggles when:
 - 1) Operating any machine, electrical or air powered tool
 - 2) Chiselling, hammering, or performing any process that could result with an eye injury from flying debris, splash, fume or spray.
- ✱ Sunglasses, prescription frames and contact lenses are not eye safety equipment.
 - 1) If you require prescription lenses, then you must wear goggles that fit over your visual aids
- ✱ Wear a clear full-face shield when:
 - 1) Using the high speed polishing buff/rotary wire wheel
 - 2) Handling molten metals
 - 3) Handling corrosive liquids
 - 4) Operating the woodworking lathes
- ✱ Wear a welding helmet with either a shade 10 or 12 dark filter lens for Arc, MIG and TIG welding (electric welding).
- ✱ Wear welding goggles with a shade 5 green tint filter lens when:
 - 1) Gas welding
 - 2) Heat bending with oxy acetylene
 - 3) Watching the laser beam on the laser cutter
- ✱ Wear a full-face shield with a shade 5 green-tint filter lens when plasma cutting.

Hearing Protection

- ✱ Your earmuffs must have a minimum class 3 level of protection.
- ✱ You must always wear earmuffs in the Wood Shop and Sanding Room. Your earmuffs must always be available for all activities in the Welding Bay and Metal Shop.
- ✱ When you can't wear earmuffs over a full-face visor or welding helmet, you can use disposable earplugs. These can be purchased from the Workshop.

Respiratory Protection

Sanding and/ or machining some materials can produce minute particles less than 0.015 mm in size. If you inhale these tiny particles it can lead to lung damage. This risk of damage can be minimised by filtering out these particles with a dust mask.

Most adhesives, fillers and paints emit vapour that can also be harmful. Reduce these risks by wearing an organic vapour respirator with a carbon chip filter, which absorbs organic vapour from air.

- ✱ Wear a dust mask in any area where airborne particle hazards exist.
- ✱ Wear an organic vapour respirator when:
 - 1) Mixing and spraying lacquer paint (also use a pre-filter to take out spray mist)
 - 2) Mixing and using resins or any other volatile substance
- ✱ Do not share respiratory protection devices, as this practice is unhygienic and you risk viral infections.
- ✱ Always store your organic vapour respirator separately, in a clean **sealed** container. Once the filters are opened they begin absorbing vapour and their capacity will soon be depleted.
- ✱ If you can smell the presence of solvents through a properly fitted organic respirator, you must replace the organic filter elements immediately. Difficulty in breathing generally requires the pre-filters to be change. You can buy these items from the Workshop Kiosk.
- ✱ Use the Plymo extractor when using the Hot Wire Cutter as the gas that is emitted from the foams can be toxic.

Hand Protection

Barrier cream decreases allergic skin reactions. Apply before:

- 1) Handling metals (decreases oil and dirt in your skin)
- 2) Handling chemicals and solvents (decreases chemical burn).

Disposable Latex gloves or green Nitrile gloves may be purchased from the Workshop. Latex gloves are approved for general industrial applications. Nitrile gloves offer a higher level of resistance to solvents.

- ✱ Latex or nitrile gloves must be worn when handling chemicals, fillers and solvents.
- ✱ Wear Leather gloves when:
 - 1) Handling glass sheet
 - 2) Handling large sheets of metal
 - 3) Metal welding of any type
- ✱ Do not wear gloves when operating machinery that involves powered rotation. The risk of catching a hand in machinery due to wearing a glove is greater than the protection from abrasion that the glove offers.



Clothing

Synthetic clothing presents a fire hazard when working around open flames, welding, electrical tasks, and solvent applications. Dustcoats must be the non-flammable type (poly-cotton), and regularly cleaned. They are mandatory in the workshop as they minimize dust being taken on clothing into studios and elsewhere.

- ✱ You must wear a dustcoat in the workshop.
- ✱ Remove anything that could get caught in machinery (jewellery, scarves and ties etc)
- ✱ Long hair must be satisfactorily restrained.



Footwear

You are strongly advised to wear safety shoes or boots with crush proof toecaps in the Workshop. Leather footwear is recommended in the Welding Bay.

- ✱ Bare feet, sandals and jandals will never be tolerated.
- ✱ Footwear must:
 - 1) Be sturdily constructed
 - 2) Fully cover and support the foot
 - 3) Have non-slip soles
- ✱ Tie your shoelaces well.



Section Three – General Hazards

When the Workshop is unsupervised (e.g. after hours, or at lunch time), all power will be switched off (exceptions are the spray booths and the sanding tables).

- ✱ Do not work alone in the Workshop.

In the event of a fire:

- 1) Warn others
- 2) Set off the fire alarm
- 3) Press a 'Kill' switch to turn off electricity to all machinery
- 4) Leave this building and assemble at the west end on the grass
- 5) Call the Fire Brigade

Use fire extinguishers only according to instruction.

In the event of electrical/mechanical failure (sparks, smoke, breaks, bends etc):

- 1) Stand clear of the machine
- 2) Press the nearest kill switch
- 3) Warn others and tell staff

In the event of injury:

- 1) Call the ambulance on 111 (add a 1 if using the workshop phone)
- 2) Provide First Aid. You are strongly to take training in First Aid

LIFTING SAFELY: Move and store heavy objects safely. According to OSH, it's unhelpful to prescribe specific weight limits, but the risk of harm does increase with increased weight or force. Assume things are heavy and ask Workshop staff for assistance.

We have a 1.25 tonne crane and trolleys to lift and move objects, machines or materials.

Adopt the correct lifting techniques; bend the knees and keep your back straight (avoid using your back as a crane).

Be careful when carrying long materials through doors. If possible carry in a vertical position or seek assistance with carrying and holding open the door.

Don't leave protruding handles – such as tube and metal benders, vices, and other machines - in a position that will cause injury to others.

Don't wear personal music devices in the Workshop. The music can mask warning sounds from machines or other Workshop users.

The Workshop music system must not be too loud, and must be turned down when requested by either staff or students.

Advise the Workshop staff before melting wax with an electric element.

Asbestos in any form (generally sheet) is not allowed in this Design Workshop.

Machine Hazards

- ✱ Don't touch rotating machinery or materials. Stop a machine before:
 - 1) Changing speeds
 - 2) Clearing debris or swarf (waste material)
- ✱ Check that a power tool is switched off before connecting to an electrical outlet.
- ✱ Check power tool leads for damaged insulation & exposed wires before using.

Power leads stretched across the floor create trip hazards. If metal chips penetrate the insulation the leads could become 'live,' resulting in an electrocution. The ceiling suspended power outlets should be used.

- ✱ Do not lay power leads across the floor.
- ✱ Do not run electrical power leads into the Workshop.
- ✱ Keep your work area - including the floor - clear of waste materials, tools, and off-cuts. Clean up as you work.
- ✱ Do not operate electrical power tools near wet areas, or with water as either a cooling or polishing agent unless they are designed specifically for that purpose.
- ✱ Before operating a machine requiring extraction, ensure the dust extraction is working.
- ✱ Close all air extraction gates and extraction arms when not in use.
- ✱ Do not remove the safety guards from any machine without first consulting Staff of your requirement.
- ✱ Workshop equipment/tools are repaired by Workshop staff only; report all faults to a Workshop staff member.
- ✱ Report any fluorescent lighting failure to Workshop Staff.
- ✱ Chuck keys must not be left in machines. Ensure chuck keys are removed from chucks before you switch a machine on.
- ✱ If unsure how to use a tool or machine safely for any job, ask the Workshop staff for help.
- ✱ The Laser Cutter is a fire risk when operating so must be supervised at all times.

Welding Room Hazards

Assume that anything metal in the Welding Bay is hot.

- ✱ Weld and heat metal in the Welding Bay, with the adjustable extraction arm operating and the hood positioned at the source of the fumes.
- ✱ Angle grind metals in the Welding Bay, with the adjustable extraction arm operating as close as practical to the work.

- ✱ When using grinders or welders take care not to endanger others or ignite flammable materials with spark showers.
- ✱ Use the 50mm belt finisher in the Welding Bay for heavy machine sanding metals. Importantly, sanding aluminium requires that you must first fit a belt, specific to non-ferrous metals. Always operate the finisher in conjunction with the air extraction, position the hood to effectively collect the fine metal dust. (Refer: aluminium sanding).
- ✱ Don't bring flammable materials into the welding bay.
- ✱ Don't put flammable materials (e.g. wooden jigs, rags or paper products) in the welding bay bins. They are for metal by-products and sweepings. Put them in bins in other areas of the Workshop.
- ✱ Cool down burnt skin as soon as possible with cold running water for at least 10 min.

Electric welding (TIG, MIG and Arc) emits an aggressive radiation that can quickly burn exposed skin and seriously injure your eyes. (Refer: Eye Protection Section).

Volatile & Poisonous Substance Hazards

- ✱ Clearly label all substance containers with your name, the contents' description and purchase date. Unlabelled containers will be disposed of.
- ✱ Never store chemicals in drink bottles.
- ✱ All substances not supplied by the Workshop must be shown to Workshop staff before you use it. Supply a Material Safety Data Sheet (MSDS) to Workshop Staff before bringing substances into the workshop that are not generally used there.
- ✱ Store flammable substances greater than 1 litre in the dangerous goods store. Contents less than a litre (e.g. spray cans) may be placed in the metal dangerous goods cabinets in the paint mixing area outside the Spray Booths.
- ✱ Don't use paints containing Isocyanides. Isocyanides are a dangerous carcinogen and your respirator organic filters are ineffective against these chemicals.
- ✱ Mix, apply and cure resins and polyester fillers (e.g. 'bog') in the Resin Shop. The extraction switch is on at the wall to the left of the Resin Shop doors. A green light beside the wall switch signals you when you can commence work. Close all doors so the extraction system functions properly. Position and operate the adjustable extraction arm hood directly over the working area.
- ✱ Consult Workshop Staff before disposing of volatile/hazardous substances.
- ✱ Acetone is the recommended chemical for cleaning most resin spillages. Wear latex gloves, goggles and an organic respirator, with the extraction systems operating and positioned to remove vapours.

Compressed Air Hazards

Careless use of compressed air is dangerous. If directed at a person's ears, the air pressure can burst eardrums.

- ✱ Don't fire high-pressure air from dusting gun nozzles or air tools directly onto any bare skin, the face, ears or body cavities.

Using compressed air for cleaning yourself is dangerous. It is safer to use an extractor or vacuum system for this cleaning process.

Some of the compressed air outlets have oil reservoirs to lubricate air tools. Use safely and with care at all times because the air/oil mist is flammable and respirable.

- ✱ If you clean a model with a duster gun, do it in the sanding room with a dust mask and the extraction tables on. When possible, use a vacuum cleaner instead of duster gun.

Dust Hazards

Fine dust suspends in the air as potential eye and lung irritants.

Dust from machining Medium Density Fibre Board (MDF) and some wood is carcinogenic (cancer inducing). This risk is minimised by correct use of extraction and respiratory protection.

- ✱ Wear a dust mask, eyes/ear protection and operate efficient dust extraction when machining urethane (green) foam. Vacuum all machine surfaces and equipment when finished.
- ✱ Carry out all dry sanding processes (MDF, wood, metal, urethane foam and blue foam) in the sanding room. Use the sanding tables with the extraction system operating and wear a correctly fitted dust mask and ear muffs.
- ✱ If your clothing is dusty, vacuum it in the sanding room; this will stop dust contamination of all other areas.
- ✱ Don't sand and/or grind fibreglass, carbon fibre, treated wood or kevlar in this Workshop. The particles are carcinogenic and remain airborne for many days.
- ✱ Vacuum your work area to reduce dust.

Other Hazards

A clean and tidy work area is less hazardous and indicates professional behaviour.

- ✱ Wash dirty hands before using tools, machinery, door handles or wall switches. Hand cleaner is provided. Please wipe down the basin areas and bin your paper towels.
- ✱ Please keep your storage bin clean & dust-free. Put waste in the large blue bin by the roller door.
- ✱ Empty your workbench bin whenever it is full. Put long or sharp objects directly in the blue bin so they can't endanger others.
- ✱ Put small sharp objects like snap off blades in the Sharps (yellow) containers.
- ✱ Spillages (oil, paint, solvents, water and adhesives) must be immediately wiped clean. Disposable rags are provided from the Tool Store.
- ✱ Expect floor spillages around the Metal Shop machinery from the use of water coolants, the walkways around the Water Jet Cutter regularly get wet. Within the Communal Design Space, lookout for slippery floors by the metal Power Saw & the hand wash basin.
- ✱ Council regulations forbid the disposal of the following materials down sinks, floor drains, stormwater drains or toilets:
 - 1) Acids (consult Workshop staff)
 - 2) Paints (water based, lacquer or enamel)
 - 3) Resins (allow surplus to cure in a paper cup with fume extraction then bin).
 - 4) Substances that set solid (plaster, concrete) wrap in newspaper and bin.



Section Four – Workshop Policy

Design Workshop Hours

Please refer to the signage information on the Workshop card access doors.

Operational hours may be extended to an 8:30 pm limit. To request an extended opening of the Design Workshop, the procedure is:

- 1) The class must request through their relevant tutor / lecturer **three working days** prior to the required extension date.
- 2) The tutor / lecturer forwards a request form to the Workshop Manager who has the responsibility to check that suitable staff are available
- 3) The Workshop Manager asks the Head of Institute for final approval.

Access for Undergraduate & Postgraduate Students

The Workshop is only available to currently enrolled Massey Spatial and Industrial Design Students undertaking design course assignment approved briefs.

Visitors do not enter the Workshop unless accompanied by Massey staff. 'Visitors' means any person not enrolled in the Massey University Wellington Campus design papers, i.e. your family members, siblings or friends.

Pets are not permitted inside the 3D Workshop. Do not prop the doors open for the purpose of unlimited access by other individuals or strangers. Do not lend your swipe card for other people to gain access. This is your very privileged facility, please act as a custodian & operate professionally amongst your peers.

Tool Use & Equipment Loans

The Workshop tools are for students' use in the workshop only. Don't remove them from this Workshop. The tools are kept:

- in lockable cupboards (e.g. the welding bay)
- in the Tool Store
- on specific machines
- on the Mobile Trolley.

Return tools to the correct storage location immediately on completion of task. Do not retain, conceal or deny another student use of the Workshop tools.

The Workshop does not loan safety glasses, earmuffs, dustcoats or footwear. For health and safety reasons students must supply their personal equipment as recommended in the 'Massey Safety Kit'.

Students should also supply their own basic tools (e.g. standard size drill bits up to 10 mm, needle files) as well as glues, sandpaper etc.

Having your own tools means that you have:

- 1) 24-hour access to your own tools
- 2) Your work can be completed more quickly and easily
- 3) Familiarity with specific tools will improve your skills

Due to the demand on the Laser cutter, we have set up a booking system and some policies about access. These are explained in detail on the booking sheet.

Purchasing Materials

You are responsible for sourcing your own materials and becoming familiar with suppliers.

There is a Workshop folder containing Material Safety Data (MSD) sheets for a range of products already. Check this folder when you are buying materials. If the correct sheet isn't in there, you must give the Workshop staff the MSD sheet for materials you bring into the workshop.

Periodically the Workshop sells specific project materials such as green & blue foam, MDF and acrylic. Only Eftpos purchases will be available through the Workshop Materials Kiosk.

Cash purchases must be made through the Cashier's Office (ground floor, Block 4). If a GST receipt is required, payment must also be made at the Cashier's Office. Ask the cashier to code the purchase to : GL 13403 0901 WS INC. Collect two receipts; hand one to the Workshop when uplifting the goods, and retain the other for your records.

Storage

You may provide a storage box to use in the Workshop.

The 3D Workshop conditions for Box storage are:

- 1) Stored items (your own tools, safety gear, dustcoats & material off-cuts) must fit in a plastic or metal box.
- 2) Storage boxes must fit within the under-bench shelf, but not on the floor.
- 3) Boxes should have a lockable lid, with your name clearly visible.
- 4) When the box is not in use, it must be stored on the under bench shelves.
- 5) Containers and packages within the box must not leak.
- 6) The box cannot be used to store any of the hazardous substances described in 'Volatile and Poisonous Substance Hazards' on Page 9.

The Design Workshop conditions for the bulk storage of materials are:

- 1) The Workshop staff must approve the storage location.
- 2) The storage duration is only for the period of a specific Massey assignment.
- 3) The stored item(s) must be named and dated with an explanation on when all items will be removed.

The Design Workshop accepts no liability for loss or damage of your tools or materials, however a review of the video surveillance can be requested at the discretion of the Design Workshop Manager.

Grinding & Sanding Aluminium

- ✱ Do not grind aluminium on a rotary grind stone wheel, as the wheel will clog with aluminium.
- ✱ Use the linisher in the welding bay, with the green 50mm sanding belt for aluminium. You must operate the adjustable air extraction arm to collect the hazardous fine air borne dust. (Refer: Welding Room Hazards).
- ✱ Sanding of aluminium must be done in the sanding room with the extraction operating (as for all permitted materials). You must wear a dust mask, goggles and earmuffs.

Material Recycling

Please contribute to restocking the cupboards labelled 'clean tins', 'jars', 'newspapers' and 'sandpaper'. Remember to label all stored contents in your containers (Refer: General Hazards).

Spray Booths

Before entering 11A09, put on your dustcoat, an organic filtered mask and safety glasses. Mix paint on the stainless bench opposite the spray booth doors. Turn on and adjust air extraction arm close to the mix area. Place some newspaper on the bench. Bin all spillages and paint filters and clean up your area. Leave extractor going over bin.

Take great care in and around the spray booths. Your actions can affect your final model as well as other students' models. With this in mind:

- ✱ Only spray in the Spray Booths.
- ✱ Make sure the extraction is on, following instructions on the control panel outside 11A09. It takes five minutes to 'purge' residual vapour after which the lights come on, so be prepared to wait.
- ✱ Spray at the filter end of the Spray Booth, away from the door.

- ✱ After five to ten minutes your work should be touch dry. At this point, shift your work to the door end of the booth or to a rack just outside the booth for curing.

We recommend automotive lacquers and acrylic paints. Oil based enamel paint dries very slowly and is not always compatible with undercoats and fillers.

Before returning a spray gun:

- 1) Flush it through with clean solvents to remove all paint contaminants
- 2) Wipe dry inside and out, with a clean lint-free cloth
- 3) Remove, clean, lube and reinstall the needle valve

Do not use the returns drawer for the Workshop spray guns, as they have very delicate mechanisms. Instead, hand them back to a Workshop Staff Member.

The C.N.C. Plastic Shop

The Plastics Shop has machines that create fumes, dust and heat when in use.

- ✱ Switch the extraction on when using the Laser Cutter, Hot Wire Cutter and 3D Router.
- ✱ Ensure all hands are clear of the vacuum forming area when operating the Vacuum Former hydraulic table.
- ✱ Use a Shade 5 eye protection or filter panel if you need to look at the laser when cutting. (Refer Eye Protection, on Pg. 6)
- ✱ Engrave glass with wet paper over it so that abrasive surfaces are not created in the process.

We are advised that although cutting PVC based plastic materials on the Laser produces chlorine gas, it does not present a health and safety issue unless it is operating all day on large quantities of material.

Phones

There is a student pay phone in the corridor opposite the Block 11 computer rooms.

The phone outside the Tool Store is only for emergency, safety, and internal Campus use. **In emergencies, dial 1 for the outside line, then 111 on the phone provided for this purpose in the general space (11A02).** Numbers are posted on the office window above phone.

Discipline

This document and the rules within are made for your safety and the safety of others. If you show through your behaviour that you have not understood the Workshop Manual then you may be required to sit the Safety Test again before you can return to the Workshop.

Hand Notes



Hand Notes Continued

3D Workshop Full Safety Kit Price

(All prices include GST)

\$120.90

✱ **White Cotton Dust Coat (100% Cotton).** ☐ **\$ 43.98**

Size	3	4	5	6	7	8	9	10
Chest (cm)	87	92	97	102	107	112	117	122
Waist (cm)	77	82	87	92	97	102	107	112



✱ **Sperian Safety Glasses.** ☐ **\$ 7.19**

✱ **Earmuffs.** ☐ **\$ 7.19**



✱ **(x2) Disposable Dust Masks.** ☐ **\$ 4.19**

✱ **Disposable Organic Mask.** ☐ **\$ 6.37**



✱ **Metric Drill Set, HSS 2, 3, 4, 5, 6 & 8mm.** ☐ **\$ 3.35**

✱ **300mm Stainless Steel Rule.** ☐ **\$ 6.64**



✱ **'Square' Drive Bit #2 x 70mm.** ☐ **\$ 2.66**

✱ **'Pozi' Drive Bit #2 x 50mm.** ☐ **\$ 2.20**



✱ **Digital Calipers x 150mm.** ☐ **\$ 37.13**



2012 Student Declaration

This document and the rules within are made for your safety and the safety of others.

If you show through your behaviour that you have not understood the 3D Workshop Safety Manual, you may be required to sit the Safety Test again before you can return to the Workshop.

- ✧ I have understood and accepted the conditions and rules relating to the Design Workshop.
- ✧ I will always endeavour to extend my capabilities and skills in the Design Workshop.
- ✧ I accept that if I fail to follow the rules I will be excluded from the Design Workshop and its facilities.
- ✧ Academic work by student's and staff takes priority over personal non-academic Workshop activities.
- ✧ I acknowledge that non-academic Workshop activities require the approval of a both a Design Workshop staff member and my completion of a signed Workshop Private Access contractual document.
- ✧ I will respect all other people's materials and property within this Design Workshop.

Student Signature: _____

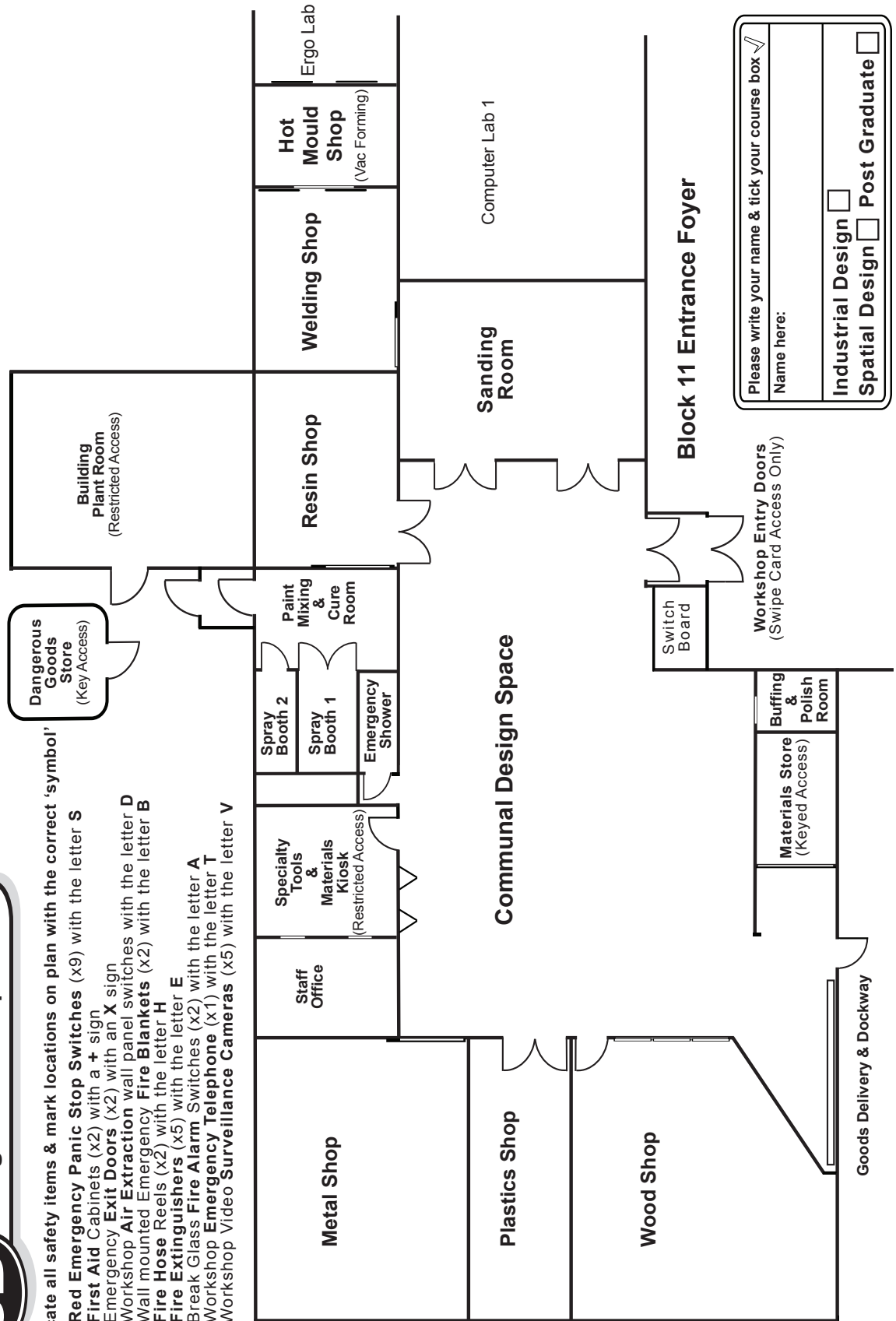
Enrolled Design Course: _____

Date: _____

3D Design Workshop Plan

Locate all safety items & mark locations on plan with the correct 'symbol'

- 1 - Red Emergency Panic Stop Switches (x9) with the letter S
- 2 - First Aid Cabinets (x2) with a + sign
- 3 - Emergency Exit Doors (x2) with an X sign
- 4 - Workshop Air Extraction wall panel switches with the letter D
- 5 - Wall mounted Emergency Fire Blankets (x2) with the letter B
- 6 - Fire Hose Reels (x2) with the letter H
- 7 - Fire Extinguishers (x5) with the letter E
- 8 - Break Glass Fire Alarm Switches (x2) with the letter A
- 9 - Workshop Emergency Telephone (x1) with the letter T
- 10 - Workshop Video Surveillance Cameras (x5) with the letter V



Please write your name & tick your course box ✓

Name here:

Industrial Design ☐

Spatial Design ☐ Post Graduate ☐